

# The multiple costs of invasive alien species

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Invasive alien species (IAS) are recognised as one of the key pressures directly driving biodiversity loss globally. Similar to climate change, the effects of IAS on ecosystems are very difficult to reverse, underlining the importance of early action to avoid long term impacts. IAS in Europe cause a series of often devastating ecological impacts – they affect ecosystem composition and function, and are a major driver of species extinction. Some of Europe's most threatened species are affected by IAS.

The over 12,000 alien species present in Europe can also negatively affect the flow of ecosystem services that benefit society and the economy, causing economic damage and impacts on public health and wellbeing. IAS have been seen to negatively affect water quality and retention, destabilisation of soil and erosion, changed nutrient cycles leading to changed food chains and/or disruption of plant–pollinator interactions. These impacts on ecosystem services have further led to negative impacts on the economy and local livelihoods include, for example, lost yield, reduced water availability and land degradation. Public health and wellbeing impacts are also common including allergies, skin problems, transmission of human diseases and the introduction of potentially dangerous animals.

IAS impacts can have direct economic implications, e.g. loss of agricultural or forestry output or costs of clean-up. Other wellbeing impacts, such as negative effects on public health, can also be presented in economic terms. Building on the estimated costs associated with 131 documented cases of IAS impacts in Europe, related to in total of 64 IAS, Kettunen and coauthors developed an EU-wide cost of IAS estimate in 2009 (Kettunen *et al.*, 2009). They estimated that IAS damage have already cost EU stakeholders at least 12 billion EUR per year over the past 20 years. With increasing trade and travel, key pathways for the spread of IAS, the risks of impacts can only be expected to increase unless additional measures are taken to address the risk and mitigate impacts.

In 2013 the European Commission, taking into account the biodiversity impacts of IAS as well as the economic value of the impacts, published a proposed Regulation (COM(2013) 620) on the prevention and management of the introduction and spread of IAS. This also responds to the EU 2020 Biodiversity Strategy action to develop a dedicated legislative instrument on IAS.

The EU legislative proposal focuses on three types of interventions; prevention, early warning and rapid response and management of established species. If adopted, the Regulation would also entail costs to EU Member States and stakeholders, e.g. through trade bans of IAS of Union concern, surveillance systems, analysis of pathways and costs of control measures. However, the costs of these measures under the proposed Regulation were estimated at significantly lower than the potential avoided costs of addressed IAS.

## References

Shine, C., Kettunen, M., Genovesi, P., Essl, F., Gollasch, S., Rabitsch, W., Scalera, R., Starfinger, U. and ten Brink, P. 2010. Assessment to support continued development of the EU Strategy to combat invasive alien species. Final Report for the European Commission. Institute for European Environmental Policy (IEEP), Brussels, Belgium.

Proposal for a Regulation of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species, COM(2013) 620 final, European Commission.

<http://ec.europa.eu/environment/nature/invasivealien/docs/proposal/en.pdf>